



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,543	02/05/2002	Noritaka Kamikubo	900-418	3129

7590 09/03/2003

NIXON & VANDERHYE P.C.
8th Floor
1100 North Glebe Rd.
Arlington, VA 22201-4714

EXAMINER

TRINH, HOA B

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,543	KAMIKUBO, NORITAKA	
	Examiner	Art Unit	
	Vikki H Trinh	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>0803</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1-2 are objected to because of the following informalities: In claim 1, line 4, the term "desired" is vague as to the claimed subject matter; In claim 1, line 4, "advance" is a relative term; In claim 2, line 2, the term "intended" is vague and in lines 3-4, the phrase "to be obtained after the polishing by a thickness of the interlayer insulating film reduced by the polishing" is unclear and confusing. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-5, 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuchne et al. (6,372,605).

As to claim 1, Kuchne et al. (6,372,605) discloses a method of making a semiconductor device having the steps of CMP for flattening an interlayer insulating film 148, 448 deposited on a wafer 140, 440 which "desired" elements are formed; wherein a stopper layer 146, 446 is formed on a region which will be excessively polished through the CMP. See figures 1E and 4D-E.

As to claim 2, the thickness for the stopper layer is greater than the insulating layer as interpreted. See col. 5, lines 35-40.

Art Unit: 2814

As to claim 4, the stopper layer is a silicon nitride. See col. 2, line 49, and col. 5, lines 60-61.

As to claim 5, the interlayer insulating film is a silicon oxide film. See col. 2, line 48, and col. 5, line 49.

As to claim 7, the stopper is removed after CMP. See col. 2, lines 51-55.

As to claim 8, the stopper layer has a thickness greater than the thickness of the interlayer insulating film as claimed. See col. 5, lines 35-40.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 3, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuchne et al. (6,372,605).

Art Unit: 2814

Kuchne et al. (6,372,605) discloses the invention substantially as claimed. However, Kuchne et al. (6,372,605) does not teach a width dimension of the stopper layer compared to a resist layer. Nevertheless, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kuchne et al. (6,372,605) with the stopper layer being greater than that of the resist layer to be removed in the photolithography step, since it is prima facie obvious to an artisan to provide the width dimension range for optimization and experimentation, because applicant has not yet provide any criticality for the range.

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. (In re Woodruff, 919 F.2d 1575, 1578 (Fed. Cir. 1990).)

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Huang et al.(6,127,262) teaches a method of having the step of planarizing SiO and other steps.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (703) 308-8238. The Examiner can normally be reached Mon-Tuesday, Thurs-Friday, 7:30 AM - 6:00 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (703) 308-4918. General

Art Unit: 2814

inquiries relating to the status of this application should be directed to the Group
receptionist at (703) 308-0858. The fax number is (703) 308-2708.

Vikki Trinh,
Patent Examiner
AU 2814



SUP